Contents of Volume 233

JULY 1958

FREEDLAND, R. A., AND HARPER, A. E. Metabolic Adaptations in Higher Animals. III. Quantitative Study of Dietary Factors Causing Response in Liver Glucose-6-Phosphatase 1

KINOSHITA, J. H., AND WACHTL, CARL. A Study of the C^{14}-Glucose Metabolism of the Rabbit Lens 5

NAKADA, HENRY I., AND SUND, LORRAINE P. Glyoxylic Acid Oxidation by Rat Liver 8

VICKERY, HUBERT BRADFORD, AND WILSON, D. G. Preparation of Potassium Dihydrogen L-(+)-Isocitrate from *Bryophyllum calycinum* Leaves 14

GRISOLIA, SANTIAGO, AND JOYCE, BARBARA K. Enzymatic Synthesis and Isolation of 2,3-Diphosphoglycerate 18

PORTER, JOHN W., AND LONG, ROBERT W. A Study of the Role of Palmityl Coenzyme A in Fatty Acid Synthesis by the Pigeon Liver System 20

BRADY, ROSCOE O., AND KOVAL, GEORGE J. The Enzymatic Synthesis of Sphingosine 26

KRISHNAMURTHY, S., MAHADEVAN, S., AND GANGULY, J. Association of Vitamin A Ester and Vitamin A Alcohol with Proteins in Rat Liver 32

LOUD, ALDEN V., AND BUCHER, NANCY L. R. The Turnover of Squalene in Relation to the Biosynthesis of Cholesterol 37

VILLEE, CLAUDE A., AND HAGERMAN, DWAIN D. On the Identity of the Estrogen-Sensitive Enzyme of Human Placenta 42

SWELL, LEON, TROUT, E. C., JR., HOPPER, J. R., FIELD, HENRY, JR., AND TREADWELL, C. R. Mechanism of Cholesterol Absorption. II. Changes in Free and Esterified Cholesterol Pools of Mucosa after Feeding Cholesterol-4-C^{14} 49

VERMEULEN, ALEX, AND CASPI, ELIAHU. The Metabolism of Prednisolone by Homogenates of Rat Liver 54

WESTPHAL, ULRICH, AND ASHLEY, BILLY D. Steroid-Protein Interactions. IV. Influence of Functional Groups in β^4-3-Ketosteroids on Interaction with Serum Albumin and β-Lactoglobulin 57

ELLIS, STANLEY. A Scheme for the Separation of Pituitary Proteins 63

AVI-DOR, Y., AND LIPKIN, REBECCA. A Spectrophotometric Method for the Determination of Reduced Glutathione 69

LI, CHOH HAO, AND CUMMINS, JOSEPH T. Studies of Pituitary Lactogenic Hormone. XVIII. Reduction of Disulfide Bridges in the Ovine Hormone and the Nature of the C-Terminus 73

BROWN, F. CHRISTINE, AND WARD, DARRELL N. Studies on Mammalian Tyrosinase. I. Chromatography on Cellulose Ion Exchange Agents 77

ALKJAERSIG, NORMA, FLETCHER, ANTHONY P., AND SHERRY, SOL. The Activation of Human Plasminogen. I. Spontaneous Activation in Glycerol 81

ALKJAERSIG, NORMA, FLETCHER, ANTHONY P., AND SHERRY, SOL. The Activation of Human Plasminogen. II. A Kinetic Study of Activation with Trypsin, Urokinase and Streptokinase 86

SHULMAN, SIDNEY, ALKJAERSIG, NORMA, AND SHERRY, SOL. Physicochemical Studies on Human Plasminogen (Profibrinolysin) and Plasmin (Fibrinolysin) 91

FILLERUP, DOROTHY L. MIGLIORE, JOSEPH C., AND MEAD, JAMES F. The Uptake of Lipoproteins by Ascites Tumor Cells. The Fatty Acid-Albumin Complex 98

MARSHALL, MARGARET, METZENBERG, R. L., AND COHEN, PHILIP P. Purification of Carbamyl Phosphate Synthetase from Frog Liver 102

STANBURY, JOHN B., AND MORRIS, MARY L. Deiodination of Diiodotyrosine by Cell-Free Systems 106

SERIF, G. S., AND KIRKWOOD, S. Enzyme Systems Concerned with the Synthesis of Monoiodotyrosine. II. Further Properties of the Soluble and Mitochondrial Systems 109

ACHER, ROGER, LIGHT, ALBERT, AND DU VIGNEAUD, VINCENT. Purification of Oxytocin and Vasopressin by Way of a Protein Complex 116

MOLL, FREDERIC C., SUNDEN, SHIRLEY F., AND BROWN, JAMES R. Partial Purification of the Serum Trypsin Inhibitor 121

BALDRIDGE, ROBERT C., AND TOURTELLOTTE, CHARLES D. The Metabolism of Histidine. III. Urinary Metabolites 125

SATO, CLIFFORD S., BYERRUM, RICHARD U., ALBERSHEIM, PETER, AND BONNER, JAMES. Metabolism of Methionine and Pectin Esterification in a Plant Tissue 128

RIGGS, THOMAS R., AND WALKER, LOIS M. Diminished Uptake of C^{14}-α-Aminoisobutyric Acid by Tissues of Vitamin B^6-Deficient Rats 132

LAGERKVIST, ULF. Biosynthesis of Guanosine 5′-Phosphate. I. Xanthosine 5′-Phosphate as an Intermediate 138

LAGERKVIST, ULF. Biosynthesis of Guanosine 5′-Phosphate. II. Amination of Xanthosine 5′-Phosphate by Purified Enzyme from Pigeon Liver 143

TAKAHASHI, HITOSHI, AND PRICE, J. M. Dehydroxylation of Xanthurenic Acid to 8-Hydroxyquinaldic Acid 150

SCHNEIDER, JOHN H., AND POTTER, VAN R. Nucleotide Metabolism. VIII. Heterogeneous Labeling in Ribonucleic Acid of Rat Liver 154

KORNBERG, S. R., LEHMAN, I. R., BESSMAN, MAURICE J., SIMMS, ERNEST S., AND KORNBERG, ARTHUR. Enzymatic Cleavage of Deoxyguanosine Triphosphate to Deoxyguanosine and Tripolyphosphate 159

LEHMAN, I. R., BESSMAN, MAURICE J., SIMMS, ERNEST S., AND KORNBERG, ARTHUR. Enzymatic Synthesis of Deoxyribonucleic Acid. I. Preparation of Substrates and Partial Purification of an Enzyme from *Escherichia coli* 163

BESSMAN, MAURICE J., LEHMAN, I. R., SIMMS, ERNEST S., AND KORNBERG, ARTHUR. Enzymatic Synthesis of Deoxyribonucleic Acid. II. General Properties of the Reaction 171

MENDICINO, JOSEPH, AND MUNTZ, JOHN A. The Activating Effect of Adenosine Triphosphate on Brain Adenylic Deaminase 178

KISSANE, JOHN M., AND ROBINS, ELI. The Fluorometric Measurement of Deoxyribonucleic Acid in Animal Tissues with Special Reference to the Central Nervous System 184

MCNUTT, WALTER S., JR. The Incorporation of the Carbon Skeleton of Cytidine into the Pyrimidine Nucleosides of Ribonucleic Acid and Deoxyribonucleic Acid by *Neurospora* 189

MCNUTT, WALTER S., JR. Incorporation of the Carbon Skeleton of Adenosine into the Purine Nucleosides of Ribonucleic Acid and Deoxyribonucleic Acid by *Neurospora* 193

SHIGEURA, HAROLD T., AND CHARGAFF, ERWIN. Studies of the Dynamics of Ribonucleic Acid Formation 197

CLARK, IRWIN, AND GEOFFROY, RAYMOND. Studies in Calcium Metabolism 203

MARTIN, ARLENE P., NEUFELD, HAROLD A., LUCAS, FRED V., AND STOTZ, ELMER. Characterization of Uterine Peroxidase 206

NEUFELD, HAROLD A., LEVAY, A. N., LUCAS, FRED V., MARTIN, ARLENE P., AND STOTZ, ELMER. Peroxidase and Cytochrome Oxidase in Rat Tissues 209

VERNON, LEO P. Photoreduction of Pyridine Nucleotides by Cell-Free Extracts and Chromatophores of *Rhodospirillum rubrum* 212

WHITE, FRED G., AND VERNON, LEO P. Inhibition of Reduced Diphosphopyridine Nucleotide Oxidase Activity of *Rhodospirillum rubrum* Chromatophores upon Illumination 217

DAC, LE KIM, AND WRISTON, JOHN C., JR. The Cofactor Requirements of Sarcosine Oxidase 222

RAW, ISAIAS, MOLINARI, RUBENS, DO AMARAL, DEA FERREIRA, AND MAHLER, H. R. Studies of Electron Transport Enzymes. I. The Purification of Cytochrome 556 from Pig Liver 225

MAHLER, H. R., RAW, ISAIAS, MOLINARI, RUBENS, AND DO AMARAL, DEA FERREIRA. Studies of Electron Transport Enzymes. II. Isolation and Some Properties of a Cytochrome-Specific Reduced Diphosphopyridine Nucleotide Dehydrogenase from Pig Liver 230

DINNING, JAMES S., AND DAY, PAUL L. Vitamin E Deficiency in the Monkey. III. The Metabolism of Sodium Formate-C^{14} 240

LICHSTEIN, HERMAN C., AND FERGUSON, ROBERT B. On the Permeability of *Lactobacillus arabinosus* to Biotin 243

SCHWARZ, KLAUS, AND FOLTZ, CALVIN M. Factor 3 Activity of Selenium Compounds ... 245
RABINOWITZ, JESSE C., AND TABOR, HERBERT. The Urinary Excretion of Formic Acid and Formiminoglutamic Acid in Folic Acid Deficiency ... 252
PÉRON, FERNAND G., AND KORITZ, SEYMOUR B. On the Exogenous Requirements for the Action of ACTH *in Vitro* on Rat Adrenal Glands ... 256

AUGUST 1958

ROUSH, ALLAN H., AND BETZ, ROBERT F. Purification and Properties of Trans-*N*-deoxyribosylase ... 261
WINEGRAD, ALBERT I., AND RENOLD, ALBERT E. Studies on Rat Adipose Tissue *in Vitro*. I. Effects of Insulin on the Metabolism of Glucose, Pyruvate, and Acetate ... 267
WINEGRAD, ALBERT I., AND RENOLD, ALBERT E. Studies on Rat Adipose Tissue *in Vitro*. II. Effects of Insulin on the Metabolism of Specifically Labeled Glucose ... 273
PAZUR, JOHN H., MARSH, JEAN M., AND TIPTON, CARL L. Cosubstrate Specificity on the Transgalactosylase of *Saccharomyces fragilis* ... 277
BOOTH, ALBERT N., JONES, FRANCIS T., AND DEEDS, FLOYD. Metabolic and Glucosuria Studies on Naringin and Phloridzin ... 280
DOMAGK, G. F., AND HERECKER, B. L. Pentose Fermentation by *Lactobacillus plantarum*. V. Fermentation of 2-Deoxy-D-ribose ... 283
HAUSER, GEORGE, AND KARNOVSKY, MANFRED L. Studies on the Biosynthesis of L-Rhamnose ... 287
FREEDMAN, AARON D., AND GRAFF, SAMUEL. The Metabolism of Pyruvate in the Tricarboxylic Acid Cycle ... 292
WICK, ARNE N., LARSON, ELLEN R., AND SERIF, GEORGE S. A Site of Action of Phenethylbiguanide, a Hypoglycemic Compound ... 296
COHN, DAVID V. The Enzymatic Formation of Oxalacetic Acid by Nonpyridine Nucleotide Malic Dehydrogenase of *Micrococcus lysodeikticus* ... 299
HILL, R., LINAZASORO, JOSÉ M., CHEVALLIER, FRANÇOIS, AND CHAIKOFF, I. L. Regulation of Hepatic Lipogenesis: The Influence of Dietary Fats ... 305
HIRSCH, JULES, AND AHRENS, EDWARD J., JR. The Separation of Complex Lipide Mixtures by the Use of Silicic Acid Chromatography ... 311
BLOMSTRAND, ROLF, AND AHRENS, EDWARD H., JR. The Absorption of Fats Studied in a Patient with Chyluria. II. Palmitic and Oleic Acids ... 321
BLOMSTRAND, ROLF, AND AHRENS, EDWARD H., JR. Absorption of Fats Studied in a Patient with Chyluria. III. Cholesterol ... 327
BURSTEIN, SHLOMO, AND LIEBERMAN, SEYMOUR. Hydrolysis of Ketosteroid Hydrogen Sulfates by Solvolysis Procedures ... 331
BANERJEE, SACHCHIDANANDA, AND SINGH, H. DEVENDRA. Cholesterol Metabolism in Scorbutic Guinea Pigs ... 336
PARK, RODERIC B., AND BONNER, JAMES. Enzymatic Synthesis of Rubber from Mevalonic Acid ... 340
KELLER, PATRICIA J., COHEN, ELAINE, AND NEURATH, HANS. The Proteins of Bovine Pancreatic Juice ... 344
JOYCE, BARBARA K., AND GRISOLIA, SANTIAGO. Studies on Glycerate 2,3-Diphosphatase ... 350
GROSS, JEROME, AND KIRK, DAVID. The Heat Precipitation of Collagen from Neutral Salt Solutions: Some Rate-regulating Factors ... 355
BERNSTEIN, EUGENE H., AND WAINIO, W. W. A Further Purification and Characterization of Cytochrome *b* ... 361
PEANASKY, R. J., AND LARDY, HENRY A. Bovine Liver Aldolase. I. Isolation, Crystallization, and Some General Properties ... 365
PEANASKY, R. J., AND LARDY, HENRY A. Bovine Liver Aldolase. II. Physical and Chemical Measurements on the Crystalline Enzyme ... 371
RUTTER, W. J., AND LARDY, HENRY A. Purification and Properties of Pigeon Liver Malic Enzyme ... 374
JARDETZKY, OLEG, AND JARDETZKY, CHRISTINE D. Proton Magnetic Resonance Spectra of Amino Acids ... 383
PAIGEN, KENNETH. The Properties of Particulate Phosphoprotein Phosphatase ... 388
WADA, SHOHACHI, PALLANSCH, M. J., AND LIENER, IRVIN E. Chemical Composition and End Groups of the Soybean Hemagglutinin ... 395
LIENER, IRVIN E. Inactivation Studies on the Soybean Hemagglutinin ... 401
YOUNG, E. GORDON, AND SMITH, DONALD G. Amino Acids, Peptides, and Proteins of Irish Moss, *Chondrus crispus* ... 406
DUNN, FLOYD W. Inhibition Studies with β-2-Thienylalanine, β-1-Naphthylalanine, *p*-Tolylalanine and Their Peptides ... 411
UMBARGER, H. EDWIN, AND BROWN, BARBARA. Isoleucine and Valine Metabolism in *Escherichia coli*. VII. A Negative Feedback Mechanism Controlling Isoleucine Biosynthesis ... 415
CLARK, J. M., JR. Amino Acid Activation in Plant Tissues ... 421
STEKOL, JAKOB A., ANDERSON, ETHEL I., AND WEISS, SIDNEY. *S*-Adenosyl-L-methionine in the Synthesis of Choline, Creatine, and Cysteine *in Vivo* and *in Vitro* ... 425
DELWICHE, C. C., AND BREGOFF, HERTA M. Pathway of Betaine and Choline Synthesis in *Beta vulgaris* ... 430
DEKKER, EUGENE E., SCHLESINGER, MILTON J., AND COON, MINOR J. β-Hydroxy-β-methylglutaryl Coenzyme A Deacylase ... 434
REVEL, HELEN R. BOWSER, AND MAGASANIK, BORIS. Utilization of the Imidazole Carbon 2 of Histidine for the Biosynthesis of Purines in Bacteria ... 439
RADHAKRISHNAN, A. N., AND MEISTER, ALTON. Amino Acid Synthesis by Reversal of the Amino Acid Oxidase Reaction ... 444
HARTMAN, STANDISH C., AND BUCHANAN, JOHN M. Biosynthesis of the Purines. XXI. 5-Phosphoribosylpyrophosphate Amidotransferase ... 451
HARTMAN, STANDISH C., AND BUCHANAN, JOHN M. Biosynthesis of the Purines. XXII. 2-Amino-*N*-ribosylacetamide-5′-phosphate Kinosynthase ... 456
POTTER, RICHARD L., AND BUETTNER-JANUSCH, VINA. Deoxycytidine Diphosphoethanolamine and Its Ribose Analogue in the Acid-soluble Extract of Calf Thymus ... 462
REPASKE, ROY, AND JOSTEN, JOHN J. Purification and Properties of Reduced Diphosphopyridine Nucleotide Oxidase from Azotobacter ... 466
BRUNNGRABER, ERIC G. Nucleotides Involved in the Enzymatic Conjugation of Phenols with Sulfate ... 472
BOLLUM, F. J., AND POTTER, VAN R. Incorporation of Thymidine into Deoxyribonucleic Acid by Enzymes from Rat Tissues ... 478
ROBERTS, DEWAYNE, AND FRIEDKIN, MORRIS. The Fluorometric Determination of Thymine in Deoxyribonucleic Acid and Derivatives ... 483
PREISS, JACK, AND HANDLER, PHILIP. Biosynthesis of Diphosphopyridine Nucleotide. I. Identification of Intermediates ... 488
PREISS, JACK, AND HANDLER, PHILIP. Biosynthesis of Diphosphopyridine Nucleotide. II. Enzymatic Aspects ... 493
BOGORAD, LAWRENCE. The Enzymatic Synthesis of Porphyrins from Porphobilinogen. I. Uroporphyrin I ... 501
BOGORAD, LAWRENCE. The Enzymatic Synthesis of Porphyrins from Porphobilinogen. II. Uroporphyrin III ... 510
BOGORAD, LAWRENCE. The Enzymatic Synthesis of Porphyrins from Porphobilinogen. III. Uroporphyrinogens as Intermediates ... 516
WOESSNER, J. FREDERICK, JR., BACHHAWAT, BIMAL K., AND COON, MINOR J. Enzymatic Activation of Carbon Dioxide. II. Role of Biotin in the Carboxylation of β-Hydroxyisovaleryl Coenzyme A ... 520
PRIVITERA, C. A., GREIFF, D., STRENGTH, D. R., ANGLIN, M., AND PINKERTON, H. Oxidative Phosphorylation by Mitochondrial Suspensions after Freezing and Storage at Low Temperatures ... 524
HAMILTON, JAMES G., AND GROLLMAN, ARTHUR. The Preparation of Renal Extracts Effective in Reducing Blood Pressure in Experimental Hypertension ... 528
SULLIVAN, M. X., AND IRREVERRE, F. A Highly Specific Test for Creatinine ... 530

SEPTEMBER 1958

BOXER, GEORGE E., AND SHONK, CARL E. Deoxyribose-5-phosphate Metabolism by Normal Liver and Malignant Hepatoma ... 535
CIFONELLI, J. A., LUDOWIEG, JULIO, AND DORFMAN, ALBERT. Chemistry of β-Heparin (Chondroitinsulfuric Acid-B) ... 541
SPIRO, ROBERT G. The Effect of *N*-Acetylglucosamine and

Glucosamine on Carbohydrate Metabolism in Rat Liver Slices ... 546
EAGLE, HARRY, BARBAN, STANLEY, LEVY, MINA AND SCHULZE, HENRY O. The Utilization of Carbohydrates by Human Cell Cultures ... 551
SERIF, GEORGE S., AND WICK, ARNE N. The Effect of 6-Deoxy-6-fluoroglucose on Glucose Utilization in Kidney Tissues ... 559
MARINETTI, G. V., ERBLAND, J., AND STOTZ, ELMER. Phosphatides of Pig Heart Cell Fractions ... 562
DONALDSON, KENNETH O., NASON, ALVIN, LEHMAN, I. R., AND NICKON, ALEX. The Role of Lipides in Electron Transport. III. Purification and Identification of a Cytochrome *c* Reductase Lipide "Cofactor" ... 566
DONALDSON, KENNETH O., NASON, ALVIN, AND GARRETT, REGINALD H. The Role of Lipides in Electron Transport. IV. Tocopherol as a Specific Cofactor of Mammalian Cytochrome *c* Reductase ... 572
HOLLANDER, VINCENT P., NOLAN, HAZEL, AND HOLLANDER, NINA. The Structural Specificity of the Estrogen-sensitive Enzyme System in Placental Homogenates ... 580
LANGER, LORNA J., AND ENGEL, LEWIS L. Human Placental Estradiol-17β-dehydrogenase. I. Concentration, Characterization, and Assay ... 583
ADELSTEIN, S. JAMES, AND VALLEE, BERT L. Zinc in Beef Liver Glutamic Dehydrogenase ... 589
MURAYAMA, MAKIO. Titratable Sulfhydryl Groups of Horse, Sheep, Dog, and Cow Hemoglobins at 0° and 38° ... 594
WOSILAIT, WALTER D. Studies on the Organic Phosphate Moiety of Liver Phosphorylase ... 597
BERG, PAUL. Studies on the Enzymatic Utilization of Amino Acyl Adenylates: the Formation of Adenosine Triphosphate ... 601
BERG, PAUL. The Chemical Synthesis of Amino Acyl Adenylates ... 608
SCHOR, JOSEPH M., AND FRIEDEN, EARL. Induction of Tryptophan Peroxidase of Rat Liver by Insulin and Alloxan ... 612
WAGLE, SHREEPAD R., MEHTA, RANJAN, AND JOHNSON, B. CONNOR. Vitamin B_{12} and Protein Biosynthesis. VI. Relation of Bitamin B_{12} to Amino Acid Activation ... 619
FARBER, EMMANUEL, AND CORBAN, MAGRUDER S. Sex Difference in Ethionine Inhibition of Hepatic Protein Synthesis ... 625
SHAPIRO, STANLEY K., AND MATHER, ADALINE N. The Enzymatic Decomposition of *S*-Adenosyl-L-methionine ... 631
LIEBERMAN, IRVING, AND OVE, PETER. Enzyme Activity Levels in Mammalian Cell Cultures ... 634
LIEBERMAN, IRVING, AND OVE, PETER. A Protein Growth Factor for Mammalian Cells in Culture ... 637
SACHS, HOWARD. Further Studies on the Amino Acid Incorporating System of Rat Liver Microsomes ... 643
SACHS, HOWARD. The Effect of Pyrophosphate on the Amino Acid Incorporating System of Rat Liver Microsomes ... 650
MCLEAN, JOHN R., COHN, GEORGE L., BRANDT, IRA K., AND SIMPSON, MELVIN V. Incorporation of Labeled Amino Acids into the Protein of Muscle and Liver Mitochondria ... 657
MORGAN, JOSEPH F., MORTON, HELEN J., AND PASIEKA, ARTHUR E. The Arginine Requirement of Tissue Cultures. I. Interrelationships between Arginine and Related Compounds ... 664
LIN, EDMUND C. C., PITT, B. M., CIVEN, MORTEN, AND KNOX, W. EUGENE. The Assay of Aromatic Amino Acid Transaminations and Keto Acid Oxidation by the Enol Borate-tautomerase Method ... 668
DINNING, JAMES S., ALLEN, BARBARA K., YOUNG, RUTH S., AND DAY, PAUL L. The Role of Vitamin B_{12} in Thymine Biosynthesis by *Lactobacillus leichmannii* ... 674
SHACK, JOSEPH. On the Recognition and Estimation of Denatured Deoxyribonucleate ... 677
ROBBINS, PHILLIPS W., AND LIPMANN, FRITZ. Separation of the Two Enzymatic Phases in Active Sulfate Synthesis ... 681
ROBBINS, PHILLIPS W., AND LIPMANN, FRITZ. Enzymatic Synthesis of Adenosine-5′-phosphosulfate ... 686
REDDY, SARANYA K., REYNOLDS, MAY S., AND PRICE, J. M. The Determination of 4-Pyridoxic Acid in Human Urine ... 691
AXELROD, JULIUS, SENOH, SIRO, AND WITKOP, BERNHARD. O-Methylation of Catechol Amines *in Vivo* ... 697
AXELROD, JULIUS, AND TOMCHICK, ROBERT. Enzymatic *O*-Methylation of Epinephrine and Other Catechols ... 702
YAMADA, ESTHER W., AND JAKOBY, WILLIAM B. Enzymatic Utilization of Acetylenic Compounds. I. An Enzyme Converting Acetylenedicarboxylic Acid to Pyruvate ... 706
HUMMEL, JOHN P., ANDERSON, DARLENE O., AND PATEL, CHANDULAL. Anionic Polymers. I. Inhibition of Prostatic Acid Phosphatase ... 712
HUMMEL, JOHN P., FLORES, MINERVA, AND NELSON, GUNNAR. Anionic Polymers. II. Inhibition of Ribonuclease ... 717
MARCUS, ABRAHAM, VENNESLAND, BIRGIT, AND STERN, JOSEPH R. The Enzymatic Transfer of Hydrogen. VII. The Reaction Catalyzed by β-Hydroxybutyryl Dehydrogenase ... 722
MARCUS, ABRAHAM, AND VENNESLAND, BIRGIT. Studies with Acetyl Coenzyme A and Condensing Enzyme in D_2O ... 727
GORTNER, WILLIS A., AND KENT, MARTHA J. The Coenzyme Requirement and Enzyme Inhibitors of Pineapple Indoleacetic Acid Oxidase ... 731
CHANCE, BRITTON, AND BALTSCHEFFSKY, HERRICK. Respiratory Enzymes in Oxidative Phosphorylation. VII. Binding of Intramitochondrial Reduced Pyridine Nucleotide ... 736
MARINETTI, G. V., ERBLAND, J., KOCHEN, J., AND STOTZ, ELMER. The Phosphatide Composition of a Purified Cytochrome Oxidase Preparation ... 740
CONNELLY, JERALD L., MORRISON, MARTIN, AND STOTZ, ELMER. Hemins of Beef Heart Muscle ... 743
STRITTMATTER, PHILIPP. The Interaction of Nucleotides with Microsomal Cytochrome Reductase ... 748
MCMURRAY, W. C., AND LARDY, HENRY A. A Requirement for Coenzyme A in Oxidative Phosphorylation ... 754
KUTNERIAN, KEGHAM, AND KUYPER, ADRIAN C. The Influence of Fluoride on the Solubility of Bone Salt ... 76

OCTOBER 1958

STRAUSS, ROBERT R., AND MOAT, ALBERT G. A Role for Biotin in Yeast Glycolysis ... 765
MAHLER, H. R., WITTENBERGER, MARY H., AND BRAND, LUDWIG. Biochemical Studies of the Developing Avian Embryo. II. Enzymes of the Citric Acid Cycle ... 770
FEINGOLD, D. S., NEUFELD, E. F., AND HASSID, W. Z. Synthesis of a β-1,3-Linked Glucan by Extracts of *Phaseolus aureus* Seedlings ... 783
REISS, OSCAR K. Pyruvate Metabolism. II. Restoration of Pyruvate Utilization in Heart Sarcosomes by α-(+)-Lipoic Acid ... 789
WINKELMAN, JAMES, AND LEHNINGER, ALBERT L. Aldono- and Uronolactonases of Animal Tissues ... 794
HOKIN, LOWELL E., AND HOKIN, MABEL R. The Presence of Phosphatidic Acid in Animal Tissues ... 800
HOKIN, LOWELL E., AND HOKIN, MABEL R. Phosphoinositides and Protein Secretion in Pancreas Slices ... 805
HOKIN, MABEL R., HOKIN, LOWELL E., SAFFRAN, M., SCHALLY A. V., AND ZIMMERMANN, BRIGITTE U. Phospholipides and the Secretion of Adrenocorticotropin and of Corticosteroids ... 811
HOKIN, MABEL R., BENFEY, B. G., AND HOKIN, LOWELL E. Phospholipides and Adrenaline Secretion in Guinea Pig Adrenal Medulla ... 814
HOKIN, LOWELL E., AND HOKIN, MABEL R. Acetylcholine and the Exchange of Inositol and Phosphate in Brain Phosphoinositide ... 818
HOKIN, LOWELL E., AND HOKIN, MABEL R. Acetylcholine and the Exchange of Phosphate in Phosphatidic Acid in Brain Microsomes ... 822
BALASUNDARAM, S., BAMJI, MAHTAB S., CAMA, H. R., SUNDARESAN, P. R., AND VARMA, T. N. R. Anhydrovitamin A_2 and Rehydrovitamin A_2 ... 827
ARTOM, CAMILLO, LOFLAND, H. B., AND OATES, JOHN A., JR. *In Vivo* Incorporation of Diethanolamine into Liver Lipides ... 833
HILLYARD, L. A., CHAIKOFF, I. L., ENTENMAN, C., AND REINHARDT, W. O. Composition and Concentration of Lymph and Serum Lipoproteins during Fat and Cholesterol Absorption in the Dog ... 838
STEYN-PARVÉ, ELIZABETH P., AND BEINERT, HELMUT. On the Mechanism of Dehydrogenation of Fatty Acyl Derivatives of Coenzyme A. VI. Isolation and Properties of Stable Enzyme-Substrate Complexes ... 843
STEYN-PARVÉ, ELIZABETH P., AND BEINERT, HELMUT. On the Mechanism of Dehydrogenation of Fatty Acyl Derivatives of Coenzyme A. VII. The Nature of the Green Color of Butyryl Dehydrogenase ... 853
DITTMER, JOHN C., FEMINELLA, JUDITH L., AND HANAHAN, DONALD J. A Study of the Quantitative Estimation of Ethanolamine and Serine in Phospholipides ... 862

MATTSON, F. H., AND LUTTON, E. S. The Specific Distribution of Fatty Acids in the Glycerides of Animal and Vegetable Fats 868
NORMAN, ARNE, AND SJÖVALL, JAN. On the Transformation and Enterohepatic Circulation of Cholic Acid in the Rat. Bile Acids and Steroids 68 872
HURLOCK, BARBARA, AND TALALAY, PAUL. 3α-Hydroxysteroids as Coenzymes of Hydrogen Transfer between Di- and Triphosphopyridine Nucleotides 886
MAKMAN, MAYNARD H., MAKMAN, RICHARD S., AND SUTHERLAND, EARL W. Presence of a Glucagon-like Material in Blood of Man and Dog 894
BELL, FRED E., AND MOUNTER, L. A. Studies of Hog Kidney Acylase I. I. Comparison with Hog Kidney Dialkylfluorophosphatase 900
MOUNTER, L. A., DIEN, LIEN TIEN H., AND BELL, FRED E. Studies of Hog Kidney Acylase I. II. Some Aspects of Substrate Specificity 903
TABOR, HERBERT, ROSENTHAL, SANFORD M., AND TABOR, CELIA WHITE. The Biosynthesis of Spermidine and Spermine from Putrescine and Methionine 907
POTTER, J. L., LAURILA, ULLA-RIITTA, AND LASKOWSKI, M. Studies of the Specificity of Deoxyribonuclease I. I. Hydrolysis of a Trinucleotide 915
LEE, TEH H. Identification of α- and β-Melanocyte-Stimulating Hormone in Hog Posterior Pituitary Powder 917
CASTELLANI, A. A., AND CASTELLANI-BISI, C. Chemical Composition of Epiphyseal Plate of Long Bones. Content of Amino Acids 920
MORELL, HALINA, SAVOIE, JEAN CLAUDE, AND LONDON, IRVING M. The Biosynthesis of Heme and the Incorporation of Glycine into Globin in Rabbit Bone Marrow *in Vitro* 923
REVEL, HELEN R. BOWSER, AND MAGASANIK, BORIS. The Enzymatic Degradation of Urocanic Acid 930
STEKOL, JAKOB A., WEISS, SIDNEY, AND ANDERSON, ETHEL I. On the Activity of "Cystine Desulfurase" in Mouse Tumors 936
LAMBERTS, BURTON L., AND BYERRUM, RICHARD U. Glutamate as a Precursor for the Pyrrolidine Ring of Nicotine 939
KIT, SAUL, BECK, CHARLES, GRAHAM, ODETTE L., AND GROSS, ARTHUR. Further Studies on the Pathways of Synthesis of Thymine Compounds by Lymphatic Tissues and Tumors 944
SCHNEIDER, WALTER C., AND ROTHERHAM, JEAN. Phosphorus Compounds in Animal Tissues. VI. Deoxycytidine Diphosphate Choline and Deoxycytidine Diphosphate Ethanolamine in the Novikoff Hepatoma 948
HECHT, LISELOTTE I., ZAMECNIK, PAUL C., STEPHENSON, MARY L., AND SCOTT, JESSE F. Nucleoside Triphosphates as Precursors of Ribonucleic Acid End Groups in a Mammalian System 954
DIETRICH, L. S., FRIEDLAND, IRA M., AND KAPLAN, LEATRICE A. Pyridine Nucleotide Metabolism: Mechanism of Action of the Niacin Antagonist, 6-Aminonicotinamide 964
OSBORN, M. J., AND HUENNEKENS, F. M. Enzymatic Reduction of Dihydrofolic Acid 969
WILSON, LLOYD G., AND BANDURSKI, ROBERT S. Enzymatic Reactions Involving Sulfate, Sulfite, Selenate, and Molybdate 975
DOCTOR, V. M. Studies *in Vivo* on the Conversion of Folic Acid to Citrovorum Factor 982
PARK, JANE HARTING, AND KOSHLAND, D. E., JR. The Hydrolytic Activity of Glyceraldehyde-3-phosphate Dehydrogenase 986
HECKER, ERICH, AND MUELLER, GERALD C. Formation of Tetralin-*p*-quinol and a Protein-bound Derivative from Tetrahydro-2-naphthol-8-C^{14} by Rat Liver Microsomes 991
CHOW, C. T., AND VENNESLAND, BIRGIT. The Nonenzymatic Decarboxylation of Diketosuccinate and Oxaloglycolate (Dihydroxyfumarate) 997
ENGLARD, SASHA. Studies on the Mechanism of the Enzymatic Amination and Hydration of Fumarate 1003
KRASNA, ALVIN I. The Stereospecificity of the Aspartase Reaction 1010
ESTABROOK, RONALD W., AND SACKTOR, BERTRAM. α-Glycerophosphate Oxidase of Flight Muscle Mitochondria 1014
SAZ, ARTHUR K., AND MARTINEZ, L. MARINA. Enzymatic Basis of Resistance to Aureomycin. II. Inhibition of Electron Transport in *Escherichia coli* by Aureomycin 1020

NOVEMBER 1958

HIATT, HOWARD H., AND LAREAU, JACQUELINE. Studies of Ribose Metabolism. VII. An Assessment of Ribose Biosynthesis from Hexose by Way of the C-6 Oxidation Pathway 1023
CAPUTTO, RANWEL, MCCOY, PAUL B., AND CARPENTER, MARY P. Requirements of Mn^{++} and Co^{++} for the Synthesis of Ascorbic Acid by Liver Extracts of Animals Deprived of Tocopherol 1025
RODÉN, LENNART, AND DORFMAN, ALBERT. The Metabolism of Mucopolysaccharides in Mammalian Tissues. V. The Origin of L-Iduronic Acid 1030
NARAHARA, H. T., AND WILLIAMS, ROBERT H. Effect of Protein Added *in Vitro* upon Insulin Degradation and Glucose Uptake by Muscle 1034
FREEDLAND, R. A., AND HARPER, A. E. Metabolic Adaptations in Higher Animals. IV. Effect of the Ethionine: Methionine Ratio of the Diet on Glucose-6-phosphatase Adaptation 1041
HOBERMAN, HENRY D. Coupling of Oxidation of Substrates to Reductive Biosyntheses. II. Location of Deuterium in Glycogen Formed from DL-2-Deuteriolactate 1045
FROMM, HERBERT J. Ribitol Dehydrogenase. I. Purification and Properties of the Enzyme 1049
BURTON, ROBERT MAIN, SODD, MARY ANN, AND BRADY, ROSCOE O. The Incorporation of Galactose into Galactolipides 1053
THERRIAULT, DONALD, NICHOLS, THOMAS, AND JENSEN, H. Purification and Identification of Brain Phospholipides Associated with Thromboplastic Activity 1061
GOODMAN, DEWITT S., AND STEINBERG, DANIEL. Studies on the Metabolism of 3,3-Dimethyl Phenylmyristic Acid, a Nonoxidizable Fatty Acid Analogue 1066
BRADY, ROSCOE O., FORMICA, JOSEPH V., AND KOVAL, GEORGE J. The Enzymatic Synthesis of Sphingosine. II. Further Studies on the Mechanism of the Reaction 1072
AGRANOFF, BERNARD W., BRADLEY, ROY M., AND BRADY, ROSCOE O. The Enzymatic Synthesis of Inositol Phosphatide 1077
SOLOMON, SAMUEL, LANMAN, JONATHAN T., LIND, JOHN, AND LIEBERMAN, SEYMOUR. The Biosynthesis of Δ^4-Androstenedione and 17α-Hydroxyprogesterone from Progesterone by Surviving Human Fetal Adrenals 1084
ROSENFELD, R. S., AND HELLMAN, LEON. The Biochemical Transformation of Cholestenone to Cholesterol 1089
GALLAGHER, T. F., KRAYCHY, S., FISHMAN, JACK, BROWN, J. B., AND MARRIAN, GUY F. A Comparison of Methods for the Analysis of Estrone, Estradiol, and Estriol in Extracts of Human Urine 1093
HOLLANDER, NINA, AND HOLLANDER, VINCENT P. The Effect of Follicle-stimulating Hormone on the Biosynthesis *in Vitro* of Estradiol-17β from Acetate-1-C^{14} and Testosterone-4-C^{14} 1097
TCHEN, T. T. Mevalonic Kinase: Purification and Properties 1100
SCHWEET, RICHARD S., AND ALLEN, ESTHER H. Purification and Properties of Tyrosine-activating Enzyme of Hog Pancreas 1104
THORNE, CURTIS B., AND LEONARD, C. GOMEZ. Isolation of D- and L-Glutamyl Polypeptides from Culture Filtrates of *Bacillus subtilis* 1109
DUERKSEN, JACOB D., AND HALVORSON, HARLYN. Purification and Properties of an Inducible β-Glucosidase of Yeast 1113
MATHIES, JAMES C. Preparation and Properties of Highly Purified Alkaline Phosphatase from Swine Kidneys 1121
SAYRE, FRANCIS W., AND ROBERTS, EUGENE. Preparations and Some Properties of a Phosphate-activated Glutaminase from Kidneys 1128
BAXTER, CLAUDE F., AND ROBERTS, EUGENE. The γ-Aminobutyric Acid-α-Ketoglutaric Acid Transaminase of Beef Brain 1135
PARCELLS, ALAN J., AND LI, CHOH HAO. *N*-Terminal Amino Acid Analysis of Growth Hormones from Human, Monkey, Whale, and Beef Pituitary Glands 1140
LI, CHOH HAO, PARCELLS, ALAN J., AND PAPKOFF, HAROLD. The *C*-Terminal Amino Acid Sequence of Growth Hormones from Human, Monkey, Whale and Sheep Pituitary Glands 1143
GROSS, S. R. The Enzymatic Conversion of 5-Dehydroshikimic Acid to Protocatechuic Acid 1146

BALIS, M. EARL, SAMARTH, KUMUD D., HAMILTON, MARY G., AND PETERMANN, MARY L. Role of the Ribonucleoprotein Particle in Protein Synthesis and the Effects of Growth Hormone 1152

UMBARGER, H. EDWIN, AND BROWN, BARBARA. Isoleucine and Valine Metabolism in *Escherichia coli*. VIII. The Formation of Acetolactate 1156

BLECHER, MELVIN, AND WHITE, ABRAHAM. Effects of Various Steroids and Metabolic Inhibitors on the Incorporation of Glycine-2-C^{14} into Total Proteins and Nucleic Acids of Normal and Malignant Lymphocytes *in Vitro* .. 1161

SCHRAMM, MICHAEL. *O*-Phosphoserine Phosphatase from Baker's Yeast 1169

RYERSON, S. J., MCMILLAN, P. J., AND MORTENSEN, R. A. Effects of Vitamin E Deficiency on Tissue and Erythrocyte Glutathione 1172

KALYANKAR, G. D., IKAWA, MYOSHI, AND SNELL, ESMOND E. The Enzymatic Cleavage of Canavanine to Homoserine and Hydroxyguanidine 1175

SILVERMAN, MILTON, AND PITNEY, ANNA J. Dietary Methionine and the Excretion of Formiminoglutamic Acid by the Rat 1179

LIN, EDMUND C. C., CIVEN, MORTEN, AND KNOX, W. EUGENE. Effect of Vitamin B_6 Deficiency on the Basal and Adapted Levels of Rat Liver Tyrosine and Tryptophan Transaminases 1183

LIN, EDMUND C. C., AND KNOX, W. EUGENE. Specificity of the Adaptive Response of Tyrosine-α-ketoglutarate Transaminase in the Rat 1186

HARRINGTON, HELEN. Effect of Glucose and Various Nucleoside on Purine Synthesis by Ehrlich Ascites Tumor Cells *in Vitro* 1190

BERNSTEIN, I. A., AND SWEET, DOROTHY. Biosynthesis of Deoxyribose in Intact *Escherichia coli* 1194

BERNSTEIN, I. A., FOSSITT, DEXTER, AND SWEET, DOROTHY. Bacterial Degradation of Deoxyribose-C^{14} 1199

VAN EYS, JAN. The Reaction of Quaternary Pyridine Derivatives with Imidazoles 1203

SCHWENK, ERWIN, ALEXANDER, GEORGE J., GOLD, ALLEN M., AND STEVENS, DEAN F. Biogenesis of Citrinin 1211

KIKUCHI, GORO, KUMAR, ABHAYA, TALMAGE, PHYLLIS, AND SHEMIN, DAVID. The Enzymatic Synthesis of δ-Aminolevulinic Acid 1214

HAYNES, ROBERT C., JR. The Activation of Adrenal Phosphorylase by the Adrenocorticotropic Hormone 1220

CHANCE, BRITTON. The Kinetics and Inhibition of Cytochrome Components of the Succinic Oxidase System. III. Cytochrome *b* 1223

TSEN, C. C., AND TAPPEL, A. L. Catalytic Oxidation of Glutathione and Other Sulfhydryl Compounds by Selenite 1230

SACKTOR, BERTRAM, O'NEILL, JOHN J., AND COCHRAN, DONALD G. The Requirement for Serum Albumin in Oxidative Phosphorylation of Flight Muscle Mitochondria ... 1233

CAMPBELL, L. LEON, JR. Reductive Degradation of Pyrimidines. IV. Purification and Properties of Dihydrouracil Hydrase 1236

GLICK, DAVID, OTTOSON, ROLF, AND EDMONDSON, PAGE R. Studies in Histochemistry. LI. Microdetermination of Hyaluronidase and Its Inhibition by Fractions of Isolated Mast Cells 1241

DECEMBER 1958

EDSALL, JOHN T. Foreword 1245

Members of the Editorial Board, 1937–1958 1246

VICKERY, HUBERT BRADFORD. To Rudolph J. Anderson ... 1249

MADSEN, N. B., AND CORI, CARL F. The Binding of Glycogen and Phosphorylase 1251

LANDAU, BERNARD R., HASTINGS, A. BAIRD, AND ZOTTU, SYLVIA. Studies on Carbohydrate Metabolism in Rat Liver Slices. XIV. Metabolic Alterations Associated with Dietary Variation 1257

WOOD, HARLAND G., JOFFE, SEYMOUR, GILLESPIE, R., HANSEN, R. G., AND HARDENBROOK, H. Lactose Synthesis. IV. The Synthesis of Milk Constituents after Unilateral Injection of Glycerol-1,3-C^{14} into the Pudic Artery 1264

WOOD, HARLAND G., GILLESPIE, R., JOFFE, SEYMOUR, HANSEN, R. G., AND HARDENBROOK, H. Lactose Synthesis. V. C^{14} in Lactose, Glycerol, and Serine as Indicators of the Triose Phosphate Isomerase Reaction and Pentose Cycle 1271

WOOD, HARLAND G., AND KATZ, JOSEPH. The Distribution of C^{14} in the Hexose Phosphates and the Effect of Recycling in the Pentose Cycle 1279

SCHRAMM, MICHAEL, KLYBAS, V., AND RACKER, E. Phosphorolytic Cleavage of Fructose-6-phosphate by Fructose-6-phosphate Phosphoketolase from *Acetobacter xylinum* ... 1283

JOLLEY, R. L., CHELDELIN, VERNON H., AND NEWBURGH, R. W. Glucose Catabolism in Fetal and Adult Heart ... 1289

KITOS, PAUL A., WANG, CHIH H., MOHLER, BOBBY A., KING, TSOO E., AND CHELDELIN, VERNON H. Glucose and Gluconate Dissimilation in *Acetobacter subozydans* 1295

ZELITCH, ISRAEL. The Role of Glycolic Acid Oxidase in the Respiration of Leaves 1299

VICKERY, HUBERT BRADFORD, AND LEVY, CARL C. The Metabolism of the Organic Acids of Tobacco Leaves. XV. Effect of Culture of Excised Leaves in Solutions of Potassium Phosphate 1304

CARTER, HERBERT E., GIGG, R. H., LAW, JOHN H., NAKAYAMA, TEISHI, AND WEBER, EVELYN. Biochemistry of the Sphingolipides. XI. Structure of Phytoglycolipide ... 1309

SRIBNEY, MICHAEL, AND KENNEDY, EUGENE P. The Enzymatic Synthesis of Sphingomyelin 1315

ROSENBERG, ABRAHAM, AND CHARGAFF, ERWIN. A Reinvestigation of the Cerebroside Deposited in Gaucher's Disease 1323

MELTZER, HERBERT L. Three-Phase Counter-Current Distribution: Theory and Application to the Study of Strandin 1327

HSIA, S. L., ELLIOTT, WILLIAM H., MATSCHINER, JOHN T., DOISY, E. A., JR., THAYER, SIDNEY A., AND DOISY, EDWARD A. Bile Acids. XI. Structures of the Isomeric 3α,6,7-Trihydroxycholanic Acids 1337

KAUTSKY, GEORGE J., BOUBOULIS, CONSTANTINE J., BECKER, R. R., AND KING, C. G. Synthesis and Metabolism of 22-Ketocholesterol-23-C^{14} 1340

GAUTSCHI, F., AND BLOCH, KONRAD. Synthesis of Isomeric 4,4-Dimethylcholestenols and Identification of a Lanosterol Metabolite 1343

NOSE, YOSHITSUGU, AND LIPMANN, FRITZ. Separation of Steroid Sulfokinases 1348

KATSOYANNIS, PANAYOTIS G., AND DU VIGNEAUD, VINCENT. Arginine-Vasotocin, a Synthetic Analogue of the Posterior Pituitary Hormones Containing the Ring of Oxytocin and the Side Chain of Vasopressin 1352

ALDRICH, F. L., JR., AND BALLS, A. K. The Reversibility of Inactivation of Chymotrypsin 1355

COLE, R. DAVID, STEIN, WILLIAM H., AND MOORE, STANFORD. On the Cysteine Content of Human Hemoglobin. 1359

PECHÈRE, JEAN-FRANÇOIS, DIXON, GORDON H., MAYBURY, ROBERT H., AND NEURATH, HANS. Cleavage of Disulfide Bonds in Trypsinogen and α-Chymotrypsinogen 1364

DIXON, GORDON H., KAUFFMAN, DOROTHY L., AND NEURATH, HANS. Amino Acid Sequence in the Region of Diisopropylphosphoryl Binding in Diisopropylphosphoryltrypsin 1373

SHAVIT, NEHEMIA, WOLFE, RAYMOND G., AND ALBERTY, ROBERT A. The Electrophoresis and Titration of Fumarase 1382

SMITH, EMIL L., AND PARKER, M. J. Kinetics of Papain Action. III. Hydrolysis of Benzoyl-L-arginine Ethyl Ester 1387

SMITH, EMIL L. Active Site of Papain and Covalent "High Energy" Bonds of Proteins 1392

FRIEDMANN, HERBERT C., AND VENNESLAND, BIRGIT. Purification and Properties of Dihydroorotic Dehydrogenase 1398

LUCK, MURRAY J., RASMUSSEN, P. STRIER, SATAKE, K., AND TSVETIKOV, A. N. Further Studies on the Fractionation of Calf Thymus Histone 1407

LORING, HUBERT S., AL-RAWI, SAAD, AND FUJIMOTO, YASUO. The Iron Content of Tobacco Mosaic Virus and Some Properties of Its Infectious Nucleic Acid 1415

WETLAUFER, DONALD B., EDSALL, JOHN T., AND HOLLINGWORTH, BARBARA R. Ultraviolet Difference Spectra of Tyrosine Groups in Proteins and Amino Acids 1421

MARTIN, R. BRUCE, EDSALL, JOHN T., WETLAUFER, DONALD B., AND HOLLINGWORTH, BARBARA R. A Complete Ionization Scheme for Tyrosine, and the Ionization of Some Tyrosine Derivatives 1429

MCMENAMY, RAPIER H., AND ONCLEY, J. L. The Specific Binding of L-Tryptophan to Serum Albumin 1436

PUTNAM, FRANK W. Abnormal Human Serum Globulins. II. Physical Constants and Amino End Groups 1448

VELICK, SIDNEY F. Fluorescence Spectra and Polarization of Glyceraldehyde-3-phosphate and Lactic Dehydrogenase Coenzyme Complexes 1455
HELLERMAN, LESLIE, SCHELLENBERG, KARL A., AND REISS, OSCAR K. L-Glutamic Acid Dehydrogenase. II. Role of Enzyme Sulfhydryl Groups 1468
RIGGS, THOMAS R., WALKER, LOIS M., AND CHRISTENSEN, HALVOR N. Potassium Migration and Amino Acid Transport 1479
CHRISTENSEN, HALVOR N., PARKER, HELEN M., AND RIGGS, THOMAS R. Nonexchange of Carboxyl Oxygen in Mammalian Amino Acid Transport 1485
HEINZ, ERICH, AND WALSH, P. M. Exchange Diffusion, Transport, and Intracellular Level of Amino Acids in Ehrlich Carcinoma Cells 1488
PETRACK, BARBARA, AND RATNER, S. Biosynthesis of Urea. VII. Reversible Formation of Argininosuccinic Acid 1494
GILVARG, CHARLES. The Enzymatic Synthesis of Diaminopimelic Acid 1501
KUMTA, UMESH S., HARPER, ALFRED E., AND ELVEHJEM, CONRAD A. Amino Acid Imbalance and Nitrogen Retention in Adult Rats 1505
BROWN, GEORGE BOSWORTH, CLARKE, DONALD A., BIESELE, JOHN J., KAPLAN, LOUIS, AND STEVENS, MARCUS, A. Purine *N*-Oxides. III. Some Biological Activities of Adenine 1-*N*-Oxide Derivatives 1509
BROWN, GEORGE BOSWORTH, STEVENS, MARCUS A., AND SMITH, HERMAN W. Purine *N*-Oxides. IV. Action of Xanthine Oxidase on Adenine 1-*N*-Oxide 1513
HOROWITZ, JACK, LOMBARD, ANNA, AND CHARGAFF, ERWIN. Aspects of the Stability of a Bacterial Ribonucleic Acid 1517
O'DONNELL, JAMES F., MACKAL, ROY P., AND EVANS, E. A., JR. An Analysis of the Acid-soluble Fraction of Normal and T2r-infected Cells of *Escherichia coli*, Strain B 1523
RHODES, W. C., AND MCELROY, WILLIAM D. The Synthesis and Function of Luciferyl-adenylate and Oxyluciferyl-adenylate 1528
MALEY, FRANK, AND OCHOA, SEVERO. Enzymatic Phosphorylation of Deoxycytidylic Acid 1538
WILSON, T. HASTINGS, AND WILSON, D. WRIGHT. Studies *in Vitro* of Digestion and Absorption of Pyrimidine Nucleotides by the Intestine 1544
RODWELL, VICTOR W., VOLCANI, BENJAMIN E., IKAWA, MIYOSHI, AND SNELL, ESMOND E. Bacterial Oxidation of Vitamin B_6. I. Isopyridoxal and 5-Pyridoxic Acid 1548
IKAWA, MIYOSHI, RODWELL, VICTOR W., AND SNELL, ESMOND E. Bacterial Oxidation of Vitamin B_6. II. Structure of "260 Compound" 1555
METZENBERG, R. L., MARSHALL, MARGARET, AND COHEN, PHILIP P. Carbamyl Phosphate Synthetase: Studies on the Mechanism of Action 1560
JOEL, CLIFFE D., KARNOVSKY, MANFRED L., BALL, ERIC G., AND COOPER, OCTAVIA. Lipide Components of the Succinate and Reduced Diphosphopyridine Nucleotide Oxidase System 1565
DRYSDALE, GEORGE R., AND COHN, MILDRED. On the Mode of Action of 2,4-Dinitrophenol in Uncoupling Oxidative Phosphorylation 1574
FRIDOVICH, IRWIN, AND HANDLER, PHILIP. Xanthine Oxidase. III. Sulfite Oxidation as an Ultra Sensitive Assay 1578
FRIDOVICH, IRWIN, AND HANDLER, PHILIP. Xanthine Oxidase. IV. Participation of Iron in Internal Electron Transport 1581
DEVLIN, THOMAS M., AND LEHNINGER, ALBERT L. The Preparation of Phosphorylating Subfragments of Rat Liver Mitochondria with Digitonin 1586
WADKINS, CHARLES L., AND LEHNINGER, ALBERT L. The Adenosine Triphosphate-Diphosphate Exchange Reaction of Oxidative Phosphorylation 1589
Index to Volume 233 1599